



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: § Group Art Unit: 1796  
Jeff Miller, et al. §  
Serial No.: 10/656,684 § Confirmation No.: 8556  
Filed: September 5, 2003 § Examiner: KUGEL, TIMOTHY J.  
Title: "Drilling Fluid and §  
Method for Enhanced Suspension" § Atty. Docket No.: HALB:045  
§

MAIL STOP AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING VIA EXPRESS MAIL	
PURSUANT TO 37 C.F.R. § 1.10, I HEREBY CERTIFY THAT I HAVE DEPOSITED THIS CORRESPONDENCE WITH THE UNITED STATES POSTAL SERVICE AS EXPRESS MAIL, POST OFFICE TO ADDRESSEE, ON THE DATE INDICATED BELOW, ADDRESSED TO:	
MAIL STOP AF HONORABLE COMMISSIONER FOR PATENTS P.O. BOX 1450 ALEXANDRIA, VA 22313-1450	Karen Tripp Sept 12, 2008 KAREN TRIPP DATE
EXPRESS MAIL LABEL: EH 310666321US	

Affidavit of Ian Robb

After being duly sworn, the undersigned affiant stated as follows:

1. My name is Ian Robb and I reside in Lawton, Oklahoma.
2. I am Senior Scientific Advisor for Research at Halliburton Technology Center in Duncan, Oklahoma.
3. I am the same Ian Robb named as an inventor on United States patent application No. 11/634,008, which concerns technology related generally to the present patent application, U.S. Serial No. 10/656,684 (referred to hereinafter as "this patent application."

3. Counsel asked me to prepare the following formulations in accordance with the Schlemmer U.S Patent No. 6,006,831, as provided in column no. 21, lines 20-35, and to measure their GPI (Gel Progression Index) as outlined by the American Petroleum Institute (API) Specification 13B-2, Section 4.3, Third Edition, February 1998 and as described in this patent application in paragraph [0023]. The maximum gel strength was measured after 10 sec and 10 min at 120°F. The GPI, defined as (10 minute gel strength/10 second gel strength)-1, for each formulation was measured three times and the average of these measurements is provided below as the GPI for the formulation.

*Internal Olefin 80/20 invert emulsion drilling fluid mixed as follows:*

Basic Formulation No. 1:

<i>Internal Olefin,</i>	<i>270 ml</i>
<i>Tap Water,</i>	<i>67 ml</i>
<i>Calcium Chloride,</i>	<i>24 g</i>
<i>Total Emulsifier,</i>	<i>3 g</i> <i>polyamide produced from polyamine reacted with fatty acids</i>
<i>Calcium Hydroxide,</i>	<i>0 g</i>
<i>Filtration Control Materials,</i>	<i>3 g</i> <i>lignite</i>
<i>Rheox "Bentone 38" gellant,</i>	<i>2 g</i> <i>clay</i>
<i>Weighting agent*</i>	<i>544 g</i> <i>barite</i>

\*Basic Formulation without weighting agent could not be tested for GPI as the fluid had no measurable gel strength.

Fluid Density: *14.6 ppg*

Test: *Basic Formulation with weighting agent*

Basic Formulation No. 2

<i>Internal Olefin,</i>	270 ml
<i>Tap Water,</i>	67 ml
<i>Calcium Chloride,</i>	24 g
<i>Total Emulsifier,</i>	4 g
	<i>polyamide produced from polyamine reacted with fatty acids</i>
<i>Calcium Hydroxide,</i>	4 g
<i>Filtration Control Materials,</i>	5 g
	<i>lignite</i>
<i>Rheox "BENTONE 38" gellant,</i>	4 g
	<i>clay</i>
<i>Weighting agent*</i>	544 g
	<i>barite</i>

\*Basic Formulation without weighting agent could not be tested for GPI as the fluid had no measurable gel strength.

Fluid Density: 14.6 ppg

Test: *Basic Formulation with weighting agent*

4. The results of these measurements are presented below:

Formulation 1

The Gel strength at 10 min was 17.3 (Fann 35 units @ 3 rpm)

The Gel strength at 10 sec was 16.0 (Fann 35 units @ 3 rpm)

GPI = 17.3/16.1 = **0.08**

Formulation 2

The Gel strength at 10 min was 25.6 (Fann 35 units @ 3 rpm)

The Gel strength at 10 sec was 21.3 (Fann 35 units @ 3 rpm)

GPI = 25.6/21.3 = **0.20**

5. The above measurements indicate that Formulation 1 had a Gel Progression Index of 0.08.

6. The above measurements indicate that Formulation 2 had a Gel Progression Index of 0.20.

Further affiant sayeth not.



Ian Robb

Sworn to and subscribed before me this 10<sup>th</sup> day of September 2008.

Seal



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(Notary Public)